seems to be a cloak of verdure with deep, harmonious folds. Its 133
bed is deeply cut and scattered with rocks and rapids as far as a point upriver from Vientiane where it attains an average width of 900 meters. Enormous calcareous rocks strung out like beads or laid on in cliffs like a veneer alternate with graceful beaches, and here and there hamlets cling to the hillsides which are lit up, as if by a flame in the sun, by the gilded spire of a pagoda. . . .

After describing a sharp bend to the south it flows peacefully towards Savannakhet between low banks which are now sandy and now covered with vigorous vegetation. It is 1500 meters in width, and its waters are deep enough in this level stretch to permit steamboat navigation all year long. Downstream from Savannakhet stretches a sudden succession of staggered rapids over a /7/ length of about 160 kilometers. These are the "Khemmarat." The current is extremely violent and forms eddies and whirlpools, while an irregular channel winds in the midst of the rocky bed. "The yellowish waters break against the rocks with a dreadful noise. Men have fled its banks, and the great trees of the forest lean from both sides over the abyss, into which their weight often drags them. A few daring fishermen have made themselves homes in the crags of the rocks, but these unfortunate creatures scarcely have time to flee when the first rains come, so great is the rapidity with which the waters of the river rise" (1).

1. De Carné, Voyage en Indochine et dans l'Empire chinois.

When it leaves the rapids the Mékong widens out (two kilometers), with isles of verdure scattered here and there, and again becomes navigable as far as Khône, the old capital of Lower Laos. Its banks grow higher again, and many villages rise in the midst of /134/
rich and fertile plains. It reaches a width as great as eight or ten kilometers and gives birth to an important group of islands, including the island of Khône which is famous for its waterfalls which bring navigation to an absolute halt. A railroad has been built /496/
across the island by the French administration to serve as a connecting link /8/ between the level stretch of Khône and that of Kratié (Cambodia).

Laos ends at South Khône, and the coastal reach of the Mekong, which belongs to Cambodia and to Cochinchina, begins.

The great river is fed from the left by multiple tributaries, the 133
chief ones of which (Nam-Ou, Nam-Ngum, Nam-Ka-Dinh, 132

[107] [Illustration here]

CHAPTER III

1. CLIMATOLOGY

132 [134] The climatology of Laos is not uniform, but varies with altitude, with latitude, with the direction of the valleys, with the position of the plateaus and with the nature of the region, which may be dry or humid, wooded or bare. It also depends on the constitution of the soil and on whether it is alluvial or eruptive, compact or powdery, light in color or dark, etc.

It would be extremely difficult to give absolutely detailed information on this important question unless we were to cite all the points of Laos one after the other, giving each one's climatic peculiarity.

This task can only be undertaken with the help of [108] meteorological stations, which have already been installed at several points and which we must hope to see become more numerous and better equipped so that they can be in a position to collect and group observations for a whole year. While awaiting more complete and detailed studies, we may divide French Laos, from the climatological point of view, into two parts, a southern part extending from the 13th parallel to the 18th, and a northern part from the 18th parallel to the 22nd.

Situated south of the tropic of Cancer, the land is subject to a monsoon regime which includes two distinct seasons, especially from the hydrographic point of view. These are the rainy season and the dry season, which divide the year nearly in half.

We must, however, make a slight reservation in the case of certain parts of northern Laos where, by reason of the high altitude, there is a sort of mixed half-season between the rainy season and the dry season in the strict sense, which is characterized by foggy weather and a rather low temperature.

In general, the rainy season corresponds to the southwest monsoon which prevails, theoretically, from April or May to October. The dry season is dominated by the northeast monsoon, which follows the above and consequently extends from October to April.

The rainy season begins with staggered storms, short but violent,

215 (bombax and callotropis), tamarind trees, jujube trees, cucumber trees, water chestnuts, etc.

In the north of Laos grow peach trees, plum trees, almond trees, [306] walnut trees, cherry trees, apple trees, pear trees, strawberry plants and medlar trees, the fruits of which are similar in taste to that of their counterparts in Europe, although they are neither as large nor as succulent as the latter.

On the edges of the forest, and sometimes even in the middle, there are also other wild fruit trees reminiscent of the plum tree, the cherry tree, the apple tree (a rose-apple tree with red or green fruits), the fig tree, the quince tree, etc. Their fruits have remained in a wild state or reverted to one because of a lack of adequate care, and are not edible. Their seeds, pits and stones have developed excessively, to the detriment of the pulp which remains tough, bitter or tasteless.

248 Finally, opium poppies, tea, ramie, hemp, etc. are cultivated
249 on the plateaus and in the high valleys.

Most European vegetables grow in Laos, in the gardens of the
241 Europeans. They are seeded at the end of the rainy season. Early varieties can be harvested and a new crop seeded well into July, but care must be taken to cover the beds during downpours, which occur frequently from May on.

134 The forests of Laos may have two characteristic forms, depending
137 on whether the soil is mountainous and composed of clay or limestone, or else flat or slightly sloped and sandy, rocky or stony. In the first case the soil has a high percentage of vegetable matter, is moist and rich in humus and consequently covered with thick forests (Dong or Pa). In the second case it has a low percentage of vegetable matter, is hot and poor in humus and is covered with light forestation (Khok or Pa-hang).

A table contained in the Appendices (No. XX) gives the nomenclature of some sixty varieties of trees on which we have information. In addition to the trees which we cite, we should also note the bamboos, rattans and banana trees.

There are some twenty varieties of bamboo, in which the stalks vary from the size of the little finger to as much as thirty or even thirty-five centimeters in diameter. They sometimes reach a height
824 of twenty meters. There are six or seven varieties of rattan of different grades and sizes, but they are used only for local needs. Among the many wild banana trees, a few varieties such as the "Kok-Koue-Kene" yield a sort of fiber rather like abaca.

137 [307] Although we are able today to evaluate the forest wealth of Laos approximately and to compute its immense commercial value,

314 lose forever the plant which they have mutilated. The Superior Resident in Laos has had studies made of the methods of extraction which can be employed without danger, and he proposes to make 314 them obligatory within a short time. As of the present time, he 656 has issued the following decree relative to the exploitation of rubber:

"Any native desiring to engage in harvesting rubber on Laotian territory must obtain a special authorization which will be conferred by the chau-muong if the interested party resides in the muong where he desires to operate, and in all other cases by the Government Commissioner of the province.

[65] [410] "This authorization shall indicate, in as clear a manner as possible, the limits within which exploitation is to take place, the methods of extraction which may be employed and those which are prohibited, and finally the point where the rubber must be submitted for checking and payment of the duties which represent land tax before it leaves Laos.

"Businessmen and corporations desirous of sending their paid agents into the regions of rubber production may address to the Government Commissioner a collective request, in which the names and residences of such agents shall be listed and in which they shall agree to abide by all regulations which the authorities shall deem it useful to prescribe. In return they shall be sent permits drawn up in accordance with the provisions of the preceding article, these permits to be delivered to their employees.

"The above authorizations shall be granted entirely free of charge.

"Contraventions to the present decree shall be prosecuted and punished by the provincial tribunals in accordance with the laws and customs in force in Laos." (Decree of September 21, 1900.)

[141]

APPENDIX XXIII
NOTE ON TOBACCO

249 Growth and preparation. Tobacco is best grown on the banks of watercourses which are left dry each year when the waters fall and which are fertilized by deposits of alluvia.

Tobacco is also grown, however, on the banks in old alluvia which are no longer inundated by the river, but where an ample supply of water is assured by the presence of a nearby stream.

134 In Laos the soil which is suited to tobacco is light and sandy and 249 contains a high proportion of potash, relatively little lime and an average quantity of nitrogenous vegetable matter.